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EXAMINER	
FORMAN, BETTY J	
ART UNIT	**PAPER NUMBER**
1634	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/584,139	YOSHIDA ET AL.	
	Examiner	Art Unit	
	BJ Forman	1634	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 April 2010*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *28-49* is/are pending in the application.

4a) Of the above claim(s) *38-44,48 and 49* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *18-37 and 45-47* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *4/10*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

FIANL ACTION

Status of the Claims

1. This action is in response to papers filed 26 April 2010 in which the Specification and claims 28, 39-41 and 44 were amended and claims 48-49 were added. The amendments have been thoroughly reviewed and entered.

The previous rejections in the Office Action dated 26 October 2009, not reiterated below, are withdrawn in view of the amendments. Applicant's arguments have been thoroughly reviewed and are discussed below as they apply to the instant grounds for rejection. New grounds for rejection, necessitated by the amendments, are discussed.

Election/Restrictions

2. Newly submitted claims 48-49 are directed to an invention that is independent or distinct from the invention originally claimed for the following reasons:

Newly added claims 48 and 49 are drawn to a process for producing a fine metal structure and the structure produced. These claims fall into Group 2 of the restriction requirement mailed 25 August 2009. Because the inventions listed as Groups 1-6 do not correspond to a special technical feature as defined by PCT Rule 13.2, restriction is proper.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 48-49 are also withdrawn from

consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

Claims 38-44 and 48-49 are withdrawn from prosecution.

Claims 28-37 and 45-47 are under prosecution.

Specification

3. The amendments to pages 27, 30 and 32 filed 26 April 2010 have been reviewed and entered.

Information Disclosure Statement

4. The information disclosure statement filed 26 April 2010 has been reviewed. A copy of the initialed 1449 is included with this office action. It is noted that the Takenaka reference (U.S. Patent No. 6,916,614) is lined-through. The reference was made of record in the Office Action of 26 October 2009. Therefore, the listing on the 1449 is a duplicate citation.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 28-30, 32-35, 37 and 45-46 are rejected under 35 U.S.C. 102(b) as anticipated by Georger et al (U.S. Patent No. 5,342,737, issued 30 August 1994).

Regarding Claim 28, Georger teaches a fine metal structure having a plurality of projections (microstructures) wherein the diameter is 1-3 μm (Column 5, lines 1-11 and Column 15, lines 4-6), wherein the height is greater than the diameter (Column 4, lines 61-68 and Column 15, lines 4-6) and wherein the microstructures are made of an alloy containing a non-metallic element (e.g. boron, Column 4, lines 14-30, Column 4, line 61-Column 5, line 11 and Column 12, lines 65-68). Georger further teaches the microstructures are coated with an electroless plating catalyst layer (Column 3, line 65-Column 4, line 13 and paragraph spanning Columns 12-13).

Regarding Claim 29, Georger teaches a non-metallic element is boron (Column 12, lines 65-68).

Regarding Claim 30, Georger teaches the microprojection is coated with a coating e.g. gold (Column 13, lines 9-15).

Regarding Claim 32, Georger teaches a fine metal structure having microprojections coated with a layer different from the microprojections e.g. gold (Column 4, lines 14-30; Column 4, line 61-Column 5, line 11; Column 12, lines 65-68; and Column 13, lines 9-15).

Regarding Claim 33, Georger teaches a fine metal structure wherein the diameter is 1-3 μm (Column 5, lines 1-11 and Column 15, lines 4-6).

Regarding Claim 34, Georger teaches the height is greater than the diameter (Column 4, lines 61-68 and Column 15, lines 4-6).

Regarding Claim 35, Georger teaches the microstructures are made of an alloy containing a non-metallic element (e.g. boron, Column 4, lines 14-30, Column 4, line 61-Column 5, line 11 and Column 12, lines 65-68).

Regarding Claim 37, Georger teaches the microprojection is coated with a coating e.g. gold (Column 13, lines 9-15).

Regarding Claim 45-46, Georger teaches a microchip having the microstructures of Claim 28 (Example 3, Columns 14-15).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claims 28-31, 36 and 45-47 are rejected under 35 U.S.C. 103(a) as being unpatentable Georger et al (U.S. Patent No. 5,342,737, issued 30 August 1994) in view of Takenaka et al (U.S. Patent No. 6,916,614, filed 8 March 2002) or Kobori et al (U.S. Patent No. 6,749,731, published 6 September 2002).

Regarding Claim 28, Georger teaches a fine metal structure having a plurality of projections (microstructures) wherein the diameter is between 0.25 and 30 μm (which is encompassed by the claimed range of 10nm to 10 μm), wherein the height is greater than the diameter and wherein the microstructures are made of an alloy containing a

non-metallic element (e.g. boron, Column 4, lines 14-30, Column 4, line 61-Column 5, line 11 and Column 12, lines 65-68) wherein the microprojection is coated with a coating e.g. gold (Column 13, lines 9-15).

Regarding Claims 31, 36 and 45-47, Georger teaches a microchip having the microstructures of Claim 28 (Example 3, Columns 14-15) and further teaches that the structure is useful as an addressable sensor for electrochemical assays (Column 3, lines 5-20) but does not teach organic material attached to the surface of the microprojections. However, organic biomolecules e.g. DNA attached to microprojecting electrodes was well known in the art at the time the invention was made as taught by Takenaka and Kobori.

Takenaka teaches a microprojection array wherein elongated microprojections are coated with gold and linked to DNA (column 8, lines 17-28) thereby forming a DNA chip for DNA assays (Abstract). Takenaka teaches the microprojection array is capable of high throughput electrochemical detection DNA hybridizations with high sensitivity detection and analysis (Column 2, lines 50-60).

Kobori also teaches a microprojection array wherein elongated microprojections are coated with gold and linked to DNA (Column 6, lines 32-67) thereby forming a DNA chip for DNA assays (Abstract). Kobori also teaches the microprojection array is capable of high throughput electrochemical detection DNA hybridizations with high sensitivity detection and analysis (Column 5, lines 4-9).

It would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to apply the DNA immobilization and DNA chips of

Takenaka and/or Kobori to the microprojection array of Georger. One of ordinary skill in the art would have been motivated to do so based on the expressed desire of Georger to provide for electrochemical assays (Column 3, lines 5-20). The artisan would have been further motivated with a reasonable expectation of success based on the teachings of Takenaka and/or Kobori and further for the benefit providing high throughput electrochemical detection DNA hybridizations with high sensitivity detection and analysis as desired in the art (Takenaka, Column 2, lines 50-60 and Kobori, Column 5, lines 4-9).

Response to Arguments

9. Applicant acknowledges that Georger uses a nickel=boron plating bath but asserts that the catalyst of Georger is a "conventional colloidal catalyst" and not a molecular electroless plating catalyst as claimed. Applicant discusses Examples 1-4 of the instant specification and asserts that "only when using a molecular electroless plating catalyst, instead of using a conventional colloidal catalyst, as the catalyst serving as a starting point of the electroless plating reaction, is it possible to fill the cavity free of defects and to produce a fine metal structure of large aspect ration with high precision". Applicant argues that Georger does not teach or suggest the catalyst as claimed.

Applicant's arguments fail to comply with 37 CFR 1.111(b) because they amount to a general allegation that the claims define a patentable invention without specifically pointing out how the language of the claims patentably distinguishes them from the references.

The instant specification illustrates a comparison between colloidal electroless plating catalyst HS202B and a catalyst solution (Neogant 834 produced by Atotec Japan) (see Example 1-4). The specification provides no experimental data regarding the comparison. The specification merely states that no defects existed for the Neogant 834 while defects existed for the HS202B. Furthermore, the instant specification merely compares one catalyst i.e. Neogant 834. The claims are not limited to this catalyst. The claims merely define a "molecular electroless plating catalyst". Additionally, Georger exemplifies Cataposti ® 44 and does not use HS202B which the specification uses for a comparison. Therefore, the specification does not provide a comparison to the prior art. For all the above reasons, the specification provides no factional or experimental evidence illustrating an advantage for the instantly claimed invention over the prior art.

Additionally, the instant specification provides no limiting definition for the newly claimed “molecular electroless plating catalyst". The courts have stated that claims must be given their broadest reasonable interpretation consistent with the specification *In re Morris*, 127 F.3d 1048, 1054-55, 44 USPQ2d 1023, 1027-28 (Fed. Cir. 1997); *In re Prater*, 415 F.2d 1393, 1404-05, 162 USPQ 541, 550-551 (CCPA 1969); and *In re Zletz*, 893 F.2d 319, 321-22, 13 USPQ2d 1320, 1322 (Fed. Cir. 1989) (see MPEP 2111). The claims are given the broadest reasonable interpretation consistent with the broad claim language and specification wherein the newly claimed catalyst is not defined. Given the breath of the claims and the lack of further guidance from the specification, it is maintained that Georger teaches all the elements of Claim 28.

Applicant further argues that Takenaka and/or Kobori do not cure the deficiencies of Georger. The argument is not found persuasive because, as stated above, Georger is not deemed deficient.

Conclusion

10. No claim is allowed.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to BJ Forman whose telephone number is (571) 272-0741. The examiner can normally be reached on 6:00 TO 3:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dave Nguyen can be reached on (571) 272-0731. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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